

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
WESTERN DIVISION

Glasstech, Inc.,

Case No. 3:07 CV 1422

Plaintiff,

MEMORANDUM OPINION
AND ORDER

-VS-

JUDGE JACK ZOUHARY

Chicago Blower Corporation,

Defendant.

INTRODUCTION

Plaintiff/Counter-Defendant Glasstech, Inc. (“Glasstech”) and Defendant/Counter-Plaintiff Chicago Blower Corp. (“Chicago Blower”) brought claims against each other following a systematic failure of heavy-duty industrial “quench” fans Chicago Blower supplied to Glasstech for use in glass tempering systems. Pursuant to Federal Civil Rule 52(a)(1), this Order includes the Court’s Findings of Fact and Conclusions of Law, following a three-day bench trial.

Glasstech seeks damages for breach of express warranty, breach of implied warranties of merchantability and fitness for a particular purpose, and negligent design. Chicago Blower seeks damages for breach of contract and fraudulent inducement.

FINDINGS OF FACT

For over 25 years Glasstech has developed and sold automotive glass bending and tempering systems (the “Glasstech system”) throughout the world. The Glasstech system uses four quench fans in a staged arrangement: two fans located at the beginning of the system (Stage 1); and two other fans

located downstream (Stage 2). The Stage 1 fans have inlet vanes which open and close in combination with outlet dampers at the end of the system. The quenching process uses a shut-off damper in tandem with an inlet vane that blocks off 99% of the air flow when both are closed. The Stage 2 fans do not have inlet vanes.

Over the years, Glasstech has purchased in excess of 500 quench fans from various fan manufacturers for use in the Glasstech system. Prior to its purchase of quench fans from Chicago Blower in 2004-05, Glasstech had not experienced any significant problems with quench fans. Quench fans are generally expected to run a decade or more without problems.

In August 2003, Chicago Blower's independent sales representative, Mark Reinhardt, contacted Glasstech to solicit business, in particular the sale of quench fans to Glasstech. Glasstech had not previously purchased quench fans from Chicago Blower, nor had Chicago Blower previously manufactured quench fans for anyone else. Following a request from Reinhardt, Kevin Alexander, Glasstech's Vice President of Logistics and Purchasing Manager, e-mailed Reinhardt on August 27, 2003 attaching generic performance specifications and air flow requirements for quench fans. Reinhardt forwarded the information to Chicago Blower representatives.

On March 26, 2004, Alexander emailed Reinhardt a request for quote ("RFQ") containing construction criteria and air flow requirements for fans in new systems to be installed in China. On March 30, 2004, Reinhardt faxed the RFQ to Larry Lucchesi, Chicago Blower's Product Manager for heavy duty sales. Based on the performance requirements in the RFQ, Lucchesi selected Chicago Blower's Design 5800 fans to fill the quote. These fans met the technical requirements in the RFQ, but failed to account for the pressure placed on the fans by the blockage of air flow as explained in the August e-mail. Further, between August and April, the parties met and discussed the quench fans;

Reinhardt made several visits to Glasstech's facility in Perrysburg, Ohio and, on one such visit, Glasstech's Senior Project Manager, David Luttrell, gave Reinhardt a tour of a Glasstech system in operation, including the quenching process. Chicago Blower submitted a Quotation to Glasstech on April 15, 2004.

Chicago Blower's Quotation invited Glasstech to issue its Purchase Order to Reinhardt and provided that "all purchase orders are subject to acceptance by Chicago Blower at its home office" (Ex. 13). One week later, Glasstech issued its Purchase Order to Chicago Blower for 28 quench fans for 7 Glasstech systems, to be located in China, Hungary, Turkey, and India. The Purchase Order stated: "This purchase order is subject to the current Glasstech Purchase Order Terms and Conditions ["T&Cs"] and said Purchase Order Terms and Conditions are hereby incorporated by reference" (Ex. 15). A few days later, Luttrell sent Reinhardt initial releases pursuant to Glasstech's Purchase Order (Ex. 16).

Glasstech's T&Cs required that if Chicago Blower "wishes to take exception to any of these terms and conditions he shall do so in writing prior to performing this order," and that "this contract constitutes the sole agreement between the parties . . . , except for amendments agreed to in writing by both Buyer and Seller" (Ex. 17). Chicago Blower acknowledged reviewing the T&Cs submitted by Glasstech, but indicated that it did not agree with some of them and offered its own "Warranty Terms which are printed on the reverse side of this letter . . . and . . . we cannot agree to any other warranty" (Ex. 18). This exchange between the parties took place in early May 2004, after Chicago Blower had released Glasstech's order for production to begin.

The quench fans were shipped and installed between July 2004 and December 2005. In June 2006, Glasstech was notified by its customer in India that the hub on a Stage 2 upper quench fan had

cracked all the way around the shaft. After replacing the cracked hub, the same fan failed again in December 2006. This was followed by notifications from customers in Hungary, Turkey, and China that one or more of their quench fans were also exhibiting cracks on the hub or back plates. To date, Glasstech has received notices that 14 of the 28 fans have experienced some type of cracks.

In late December 2006, Chicago Blower learned that Glasstech's system uses rapidly cycling quench dampers that block off nearly all air flow when closed with the inlet vanes. This simultaneous and continuous stoppage of air flow increases the pressure in the systems, beyond the peak pressure of the quench fans. The pressure pulsations generated as a result of the abrupt damper changes can also impact the life of the fans. Because these conditions were not in Glasstech's RFQ, Chicago Blower claimed its warranty did not cover the failures.

Chicago Blower performed start-up service for all the quench fans, except for the 4 fans located in India. In February 2007, Chicago Blower voluntarily extended its express warranty to the earlier of 24 months from shipment, or 18 months from date of start-up service. For those fans on which it did not perform start-up service, Chicago Blower extended its express warranty to the earlier of 18 months from shipment or 12 months from date of start-up.

CONCLUSIONS OF LAW

To begin, the Court must determine which party's T&Cs apply to the quench fans. Chicago Blower argues Glasstech accepted its additions to the T&Cs through Glasstech's conduct because: (1) Glasstech was silent after Chicago Blower proposed the changes to the T&Cs; and (2) Glasstech implicitly admitted that Chicago Blower's warranty controls because the parties negotiated an extension of that warranty. Glasstech claims that the additional terms proposed by Chicago Blower did not become part of the contract because (1) Glasstech's offer expressly limited acceptance to the

terms of the offer unless modified terms were agreed to in writing; (2) the additional terms materially altered Glasstech's offer; and (3) Glasstech provided timely objection to the additional terms.

This is a commercial dispute governed by Ohio Law and the Uniform Commercial Code ("UCC"). Under UCC § 2-207 (codified in Ohio law as R.C. § 1302.10):

if (i) conduct by both parties recognizes the existence of a contract although their records do not otherwise establish a contract, (ii) a contract is formed by an offer and acceptance, or (iii) a contract formed in any manner is confirmed by a record that contains terms additional to or different from those in the contract being confirmed, the terms of the contract are:

- (a) terms that appear in the records of both parties;
- (b) terms, whether in a record or not, to which both parties agree; and
- (c) terms supplied or incorporated under any provision of this Act.

In this case, Chicago Blower's acceptance of Glasstech's offer was made conditional on Glasstech's assent to Chicago Blower's additional warranty and cancellation terms (Ex. 18). At the same time, however, Chicago Blower released Glasstech's order for production without waiting for Glasstech's acceptance of Chicago Blower's new terms.

In *Gage Products Co. v. Henkel Corp.*, 393 F.3d 629, 641 (6th Cir. 2004), the Sixth Circuit noted "that, as with a proposed term that materially alters the contract under § 2-207(2)(b), an offeree's refusal to accept a conditional offer under § 2-207(2) does not preclude contract formation where the parties' conduct otherwise evidences an agreement." Chicago Blower's actions demonstrated acceptance of Glasstech's offer to purchase fans when it released Glasstech's order for production. A contract existed between the parties. Glasstech's later objection to Chicago Blower's terms did not preclude creation of a contract. Neither party, however, confirmed in writing which set of T&Cs controlled. The Court therefore finds neither party's warranty was incorporated into the contract. Instead, UCC § 2-207(c) permits the Court to supply terms from other sections of the UCC to supplement the missing warranty provision of the contract.

Breach of Implied Warranty of Merchantability

UCC § 2-314(1) (R.C. § 1302.27(A)) states “a warranty that the goods shall be merchantable is implied in a contract for their sale if the seller is a merchant with respect to goods of that kind.” Chicago Blower qualifies as a merchant of quench fans under UCC § 2-104(1) (R.C. § 1302.01(5)), as it “holds [itself] out as having knowledge or skill peculiar to the . . . goods involved in the transaction.” Chicago Blower solicited Glasstech, both through Reinhardt and the internet (“A staff of specially trained agencies will design a dependable fan that exactly fits your dimensional and performance requirements” (Ex. 90)). Clearly, Chicago Blower qualifies as a merchant of these quench fans and is bound by the UCC’s implied warranty to supply “merchantable” goods as defined by UCC § 2-314(2)(a)-(c) (R.C. § 1302.27(B)(1)-(3)): namely, fans that “pass without objection in the trade under the contract description, . . . are of fair average quality within the description [and] are fit for the ordinary purposes for which goods of that description are used.”

What caused the fans to fail? The Court finds credible the testimony of Glasstech’s expert, Robert Sayer, who found “the resonance excitation of the rotor critical speed [of the fans] was the sole reason for . . . every failure that’s listed as a hub failure” (TR 467). Sayer further explained that failures of this type occur when a fan’s natural frequency is “excited,” or when the fan is operating at a speed approximately equivalent to a fan’s natural frequency. He performed finite element analyses on Chicago Blower quench fan rotors and determined that the natural frequency of these fan rotors in their operating state was “very close to the operating speed of the fan” (TR 385). In such a situation, any stresses in the system would be amplified significantly, leading to fatigue failure in the fan hubs (TR 385, 390). These stresses were further complicated by use of a “poor weld design” that “caused additional stress concentrations” (TR 390-91). Sayer calculated that for a fan operating

at a speed at the natural frequency, the amplification factor for even routine stresses and imbalances is 50 to 1-- meaning each stress or imbalance would be magnified fifty times its normal impact on a fan at rest (TR 392-93). Such failures would primarily appear in the hub area (TR 400).

Sayer further testified that fan manufacturers generally design fan wheels outside of the “exclusion zone,” that is, with sufficient separation margins from the natural frequency such that any change in the frequency caused by the mechanics of the fan (e.g., mounting the fan on its pedestal) still keeps the natural frequency far enough from the operating speed to preclude any excitation (TR 395-96). Sayer found through his testing of Chicago Blower’s quench fans that they operated at or very near to the natural frequency of the fans, or well within the exclusion zone (TR 390-92). And the location of the cracks in Chicago Blower’s quench fan hubs were consistent with the location of cracks due to excitation of a fan’s natural frequency (TR 400-01).

Chicago Blower performed “bump tests” to record natural frequency of the rotor at rest, but these tests were flawed because they indicated the fans had a much higher natural resting frequency than they actually did (TR 423-25). Moreover, bump tests do not provide information regarding what the natural frequency of the fan will be *at operating speed* (TR 387). The only way to determine what the natural frequency of a fan will be at operating speed is to use the results of a bump test to create a finite element model, which in turn provides a method of numerical analysis to calculate the fan’s natural frequency. Chicago Blower did not perform any finite element analyses on the fans it provided to Glasstech (TR 104-05).

Chicago Blower’s expert, Ronald Lane, confirmed that the fans showed fatigue failure at the hubs (TR 721). Lane attributed these failures to the quench dampering, which “essentially goes from full flow to no flow in very short time frames, repeatedly” (TR 722). Lane believed while the fans

may fail if operated within the exclusion zone, having a natural frequency within that zone does not automatically cause a fan failure (TR 729). He attributed the fan failure as most likely caused by a high axial load inherent in the fan design which allowed higher stresses when the fans rotated and resulted in a higher susceptibility to fatigue failure at the hub (TR 744). Lane acknowledged Sayer's theory and agreed excitation from fans operating at their natural frequency could be a factor in overall fatigue life of a fan, but declined to find it the *only* factor in the failure (TR 746).

Weighing the credibility of both experts, the Court finds Sayer's testimony to be more persuasive and reliable. Further, Lane concedes the accuracy of Sayer's analysis and agrees the general industry practice recommends manufacturing fans with a "critical" (safe) fan rotor speed at least 25% greater than the operating speed (TR 756). Chicago Blower's fans ran between 5% and 9% greater than the operating speed, well within the exclusion zone (TR 758). Chicago Blower also did not perform a finite element analysis to determine what the critical fan rotor speed would be on the actual fans it shipped to Glasstech (TR 669). The quench fans failed to meet general industry standards and this failure was a breach of the implied warranty to provide merchantable fans for Glasstech's systems.

Breach of Implied Warranty of Fitness for a Particular Purpose

UCC § 2-315 (R.C. § 1302.28) provides "[w]here the seller at the time of contracting has reason to know any particular purpose for which the goods are required and that the buyer is relying on the seller's skill or judgment to select or furnish suitable goods, there is . . . an implied warranty that the goods shall be fit for such purpose." Thus, there are three requirements for this warranty: "(1) the seller must have reason to know the buyer's particular purpose, (2) the seller must have reason to know that the buyer is relying on the seller's skill or judgment to furnish appropriate goods,

and (3) the buyer must, in fact, rely on the seller's skill or judgment." *Gumbs v. Int'l Harvester, Inc.*, 718 F.2d 88, 92 (3d Cir. 1983).

Chicago Blower alleges it was unaware of the particular purpose for which the quench fans would be used. However, Chicago Blower sent salesman Mark Reinhardt to tour the Glasstech facility several times to "talk[] about the qualifications and the capabilities of Chicago Blower, and . . . to gain . . . confidence and be able to get a request for quote" (TR 507). Chicago Blower held out Reinhardt as its representative, and Reinhardt represented that he could provide Chicago Blower's specifications "especially" for the Glasstech system. Indeed, he "acknowledged" that these fans "would be custom designed for the Glasstech application" (TR 539).

Moreover, Reinhardt had ample opportunity to learn about Glasstech's particular needs. David Luttrell "tried to explain" the system, including the quenching process to Reinhardt, who had the opportunity to observe Glasstech's facility (TR 530). Although Reinhardt claims he was never informed of the quench dampers in the Glasstech system, he also admits that he is not a fan engineer and has developed "no expertise" in the fan business (TR 529). If true, then he was obligated to bring on board someone else from Chicago Blower who could "walk the talk."

Reinhardt's apparent failure to appreciate the existence or importance of the quenching process is no excuse for failing to convey Glasstech's specific needs to Chicago Blower, particularly in light of his assurances that the fans would be custom designed for Glasstech. The Court further finds that Glasstech reasonably relied on Reinhardt's representations and that the failure to design the quench fans according to specifications provided by Glasstech rests squarely with Reinhardt.

In support of its argument, Chicago Blower cites *Mohasco v. Anderson Halverson Corp.*, 90 Nev. 114, 118-19 (1974). However, this Nevada case concerns a situation in which plaintiff

requested and received carpet to plaintiff's specifications -- that is, the carpet "conform[ed] to a precise description supplied by the buyer." *Id.* at 119. Defendant supplied plaintiff with a product that matched, as it turned out, faulty specifications; therefore, plaintiff could not later argue a failure of the implied warranty of merchantability. In the instant matter, Reinhardt himself testified Glasstech provided Chicago Blower with written specifications for the fans it required for its systems (TR 539). Reinhardt also understood these were to be custom-designed fans. Reinhardt toured Glasstech's facility, at which point the particularities of the quench dampering and the entire Glasstech system were explained to him. Reinhardt's failure to communicate these particular needs to Chicago Blower is Chicago Blower's failure, not Glasstech's.

Chicago Blower also cites for support *Hollingsworth v. Software House*, 32 Ohio App. 3d 61, 66 (1986), but this is a case in which the court affirmed the trial court's finding that there was an implied warranty of fitness for a particular purpose because "[plaintiff] had little knowledge of computers and relied on appellant's skill and judgment to select the proper software and equipment to meet his needs." Similarly, Glasstech's expertise is in building systems to bend and temper glass, not in manufacturing the parts (including quench fans) that work within the system (TR 49). Glasstech relied on Chicago Blower's expertise in fan manufacturing to design fans that could withstand the rigors of its systems. Chicago Blower failed to supply such fans, and as a result breached its implied warranty that its quench fans would be fit for Glasstech's purposes.

Negligent Design

Glasstech alleges Chicago Blower "negligently designed and specified inadequate structural supports and materials that were not sufficient to withstand the day-to-day operation of Glasstech's glass manufacturing systems" (Doc. No. 19, p. 6). Under Ohio law, a negligent design defect claim

requires proof of three elements: “1) [a] duty to design against reasonably foreseeable hazards; 2) breach of that duty; and 3) injury which was proximately caused by the breach.” *Parsley v. Hamilton Beach/Proctor Silex, Inc.*, 494 F. Supp. 2d 858, 863 (S.D. Ohio 2006).

The contract between the parties created a duty for Chicago Blower to design and manufacture quench fans for Glasstech that would not succumb to reasonably foreseeable hazards. As stated above, the quench fans Chicago Blower provided Glasstech operated at or near their natural frequency, causing the hubs to crack and the fans to fail. Industry standards dictate a fan should operate outside its exclusion zone, or at least 25% greater than the fan’s natural frequency. Chicago Blower knew or should have known that manufacturing fans within the exclusion zone would result in fans with a high likelihood of failure. Thus, Chicago Blower is liable to Glasstech for the costs involved in repairing or replacing the faulty fans in Glasstech’s customers’ systems.

Chicago Blower Counterclaims: Breach of Contract and Fraudulent Inducement

Chicago Blower alleges it provided requested services and parts for damaged quench fans during the period July 2006 through March 2007, and that these services were not covered by Chicago Blower’s warranty. However, as the Court finds neither party’s warranty controlled, Chicago Blower cannot allege a breach of contract under its warranty terms. Chicago Blower’s breach of contract claim is denied.

Chicago Blower also alleges Glasstech fraudulently “represented to Chicago Blower that it would pay for Chicago Blower’s service trips and for replacement parts for the fans in connection with Chicago Blower’s efforts to work with Glasstech to find solutions for the hub failures” (Doc. No. 21, p. 19, ¶ 56). However, because this Court finds Chicago Blower breached its implied warranties of merchantability and fitness for a particular purpose in its manufacture of Glasstech’s

quench fans, Chicago Blower is liable for the cost of the service trips and replacement parts necessary to repair the fans. This claim is also denied.

Remaining Claims

As the Court finds an express contract existed between the parties, Glasstech's alternative claim of equitable indemnity and Chicago Blower's alternative counterclaims of unjust enrichment, quantum meruit, and promissory estoppel are inapplicable. *See, e.g., All Occasion Limousine v. HMP Events*, No. 2003-L-140, 2004 Ohio App. LEXIS 4626, at *11 (Ohio. Ct. App. Sept. 24, 2004) ("The doctrine of unjust enrichment does not apply when a contract actually exists; it is an equitable remedy applicable only when the court finds there is no contract."). As the parties did not agree to any explicit warranty terms, Glasstech cannot recover on a theory of breach of express warranty. The Court declines to grant Glasstech's request for a declaratory judgment, finding this Opinion and Order sufficient to rectify Glasstech's harms.

DAMAGES

Glasstech alleges it incurred the following damages as a result of Chicago Blower's breach of the implied warranties of merchantability and fitness for a particular purpose, and its negligent design of quench fans for Glasstech (Ex. 109):

14 Replacement Stage 2 Fan Rotors	\$141,578
10 Modification Kits for Stage 1 Fans	6,500
Freight Charges to ship replacement parts	24,817
Travel Expenses for Glasstech employees to assist customers with repairs	22,835
Salary for Glasstech employees to assist customer with repairs	11,793
Anticipated Expenses to assist customers in Turkey and China with repairs and replacements	8,800
Robert Sayer's analytical work re: replacement of rotors in India	11,400
Credit issued to customer in Hungary in settlement of claims	<u>74,286</u>
TOTAL	<u>\$302,009</u>

The Court finds these expenses to be reasonable. The purpose of awarding contract damages is to make the non-breaching party whole. *World Metals, Inc. v. AGA Gas, Inc.*, 142 Ohio App. 3d 283, 287 (Ohio Ct. App. 2001). UCC § 2-714 (R.C. § 1302.88(B)) permits courts to vary from the default calculation of damages for breach of warranty (namely, “the difference at the time and place of acceptance between the value of the goods accepted and the value they would have had if they had been as warranted”) if “special circumstances show proximate damages of a different amount.” These damages may include full replacement costs. *See, e.g., Community Television Servs., Inc. v. Dresser Indus., Inc.*, 435 F. Supp. 214, 217-18 (D.S.D. 1977), *aff’d* 586 F.2d 637 (8th Cir. 1978) (purchaser awarded replacement costs less depreciation for time it enjoyed use of the goods in order to be fully compensated). In this instance, to make it whole, Glasstech is entitled to repair costs for fans that were not fully destroyed, or full replacement costs for fans that cannot be repaired.

Furthermore, under UCC § 2-714(2) (R.C. § 1302.88(B)), the Court may award damages for repair costs Glasstech will incur to bring goods into compliance with the implied warranty for a particular purpose, even if those goods have not failed at the time of trial. *See McMonigle Excavating & Concrete, Inc. v. Riley*, No. CA2003-07-075, 2004 WL 602312, at *3 (Ohio Ct. App. Mar. 29, 2004). In *McMonigle Excavating*, a homeowner brought a breach of contract claim against the construction company which laid the foundation for his home. *Id.* at *2. The trial court awarded damages for the homeowner, and the construction company appealed, arguing the trial court improperly awarded future damages because homeowner's expert did not testify the foundation cracking would continue. *Id.* The court of appeals affirmed, holding the homeowner was entitled to damages for piercing of the foundation, even though the homeowner's expert did not testify cracking would continue because "[t]he cost of repairing the deficient work is the proper measure of damages since the owner of the building is entitled to proper performance of the contract." *Id.* at *3.

Glasstech requests \$8,800 for expenses it anticipates it will incur to assist customers in Turkey and China with fan repairs and replacement. This \$8,800 sum represents the reasonable and necessary costs Glasstech will incur to bring the fans into compliance with the implied warranties.

Special circumstances also dictate Glasstech's reimbursement for the cost of its expert, Robert Sayer, regarding the vibration problems in India related to installing replacement parts for Chicago Blower's defective quench fans. Sayer's services were required to make sure these replacement parts properly fixed the fans, and Chicago Blower is liable to Glasstech for this expense.

Glasstech is also entitled to recover incidental charges incurred in the repair process, including freight charges, travel expenses, and salary costs under UCC § 2-715(2) (R.C. § 1302.89(B)(1)). *See, e.g., Willred Co. v. Westmoreland Metal Mfg. Co.*, 200 F. Supp. 59, 66-67 (E.D.

Pa. 1961) (finding plaintiff could recover labor and travel costs incurred in conducting furniture repairs).

Finally, Glasstech seeks recovery from Chicago Blower for its settlement with a customer in Hungary for the costs the customer incurred to repair its fans. Courts have found that third-party claims may cause buyers consequential damages for which the seller should bear ultimate responsibility. *See, e.g., Kelly v. Hanscom Bros.*, 231 Pa. Super. 357, 362 (1974) (finding an implied warranty was breached in a contract between wholesaler and retailer, thereby rendering retailer's settlement with consumer a third-party claim for which the wholesaler was liable). Glasstech's settlement with its customer in Hungary was the result of Chicago Blower's breach of its implied warranties regarding the quench fans in Glasstech's system. Therefore Chicago Blower is liable to Glasstech for the amount Glasstech settled with its Hungarian customer.

CONCLUSION

Chicago Blower admits the quench fans sold to Glasstech were not designed for the Glasstech system. Reinhardt failed to convey necessary data regarding quench dampers so Chicago Blower technicians could design a fan that worked properly. Chicago Blower breached the implied warranties of merchantability and fitness for a particular purpose, and also negligently designed these fans. Consequently, Chicago Blower is liable for damages to Glasstech in the amount of Three Hundred Two Thousand and Nine Dollars (\$302,009), plus post-judgment interest.

IT IS SO ORDERED.

s/ Jack Zouhary
JACK ZOUHARY
U. S. DISTRICT JUDGE

September 29, 2009